A PERIPHERAL MARKER OF BLOOD BRAIN BARRIER PERMEABILITY

ABSTRACT

The present invention relates generally to a peripheral marker or markers of blood brain barrier ("BBB") integrity and methods of using same in the diagnosis, prognosis, and treatment of a variety of diseases. The peripheral marker(s) of the present invention are particularly useful in the differential diagnosis of diseased states. The preferred embodiments of the present invention relate to methods, compositions, kits, and assays useful in determining the integrity or permeability of a blood brain barrier. The various embodiments of the present invention can be used to identify subjects at risk for developing a disease associated with increased permeability of the blood brain barrier, as well as to provide insight on the ability of an agent or agents to pass the blood brain barrier. Embodiments of the present invention preferably involve the use of subject derived blood samples to determine the occurrence and level of circulating proteins indicative of blood brain barrier permeability or integrity. The embodiments of the present invention also provides screening methods for diagnosis, prognosis, susceptibility, or degree of permeability of penetration of the blood brain barrier by detecting the presence of serum S-100β either directly or through the use of antibodies. The present invention further provides for kits for carrying out the above described screening methods. Preferably, such kits will be used to screen patients for increased levels of S100β protein alone or in combination with other markers of diseased states as a diagnostic and prognostic indicator of permeability of the BBB. Thus, the present invention provides a minimally invasive alternative to direct cerebrospinal fluid sampling to determine the permeability of the blood brain barrier.